

CLAIMS

1. An image generation system for generating an image, comprising:

5 means which performs a light-source simple processing, the processing being necessary to change at least one of the brightness and color of a surface of a simple object according to the amount of light that is sent from a light source and received by the surface of the simple object; and

10 means which generates an image of the simple object based on a result of the light-source simple processing.

2. An image generation system for generating an image, comprising:

15 means which performs computation to obtain information relating to at least one of the brightness and color of a primitive surface constructing a simple object, based on an incident angle of a light vector from a light source; and

20 means which generates an image of the simple object based on the information relating to at least one of the brightness and color of the primitive surface constructing the simple object.

3. The image generation system as defined in claim 1.

25 wherein computation for obtaining information relating to at least one of the brightness and color of a primitive surface constructing the simple object is performed based on an angle

difference between a line-of-sight vector of a virtual camera and a light vector from the light source.

4. The image generation system as defined in claim 2,
5 wherein computation for obtaining the information relating to at least one of the brightness and color of the primitive surface constructing the simple object is performed based on an angle difference between a line-of-sight vector of a virtual camera and a light vector from the light source.

10 5. The image generation system as defined in claim 3,
wherein the angle difference is computed based on two-axis components in both the line-of-sight vector of the virtual camera and the light vector from the light source.

15 6. The image generation system as defined in claim 4,
wherein the angle difference is computed based on two-axis components in both the line-of-sight vector of the virtual camera and the light vector from the light source.

20 7. The image generation system as defined in claim 1, further comprising:

means which rotates the simple object such that a normal vector of primitive surfaces constructing the simple object
25 becomes parallel to a line-of-sight vector of a virtual camera.

8. The image generation system as defined in claim 2, further

comprising:

means which rotates the simple object such that a normal vector of the primitive surfaces constructing the simple object becomes parallel to a line-of-sight vector of a virtual camera.

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9. The image generation system as defined in claim 1,
wherein the light source is a source of parallel rays.

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10. The image generation system as defined in claim 2,
wherein the light source is a source of parallel rays.

FIG. 4

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11. The image generation system as defined in claim 1,
wherein information relating to at least one of the brightness and color of a primitive surface constructing one simple object among a plurality of simple objects is used to generate an image of a primitive surface of another simple object among the plurality of simple objects.

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12. The image generation system as defined in claim 2,
wherein the information relating to at least one of the brightness and color of a primitive surface constructing one simple object among a plurality of simple objects is used to generate an image of a primitive surface of another simple object among the plurality of simple objects.

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13. The image generation system as defined in claim 1,
wherein the simple object or primitive surfaces

constructing the simple object are set to have first and second color information; and

wherein information relating to the color of the primitive surfaces is computed by interpolation computation based on the first and second color information and information relating to at least one of the brightness and color of one of the primitive surfaces.

14. The image generation system as defined in claim 2,

wherein the simple object or the primitive surfaces constructing the simple object are set to have first and second color information; and

wherein information relating to the color of the primitive surfaces is computed by interpolation computation based on the first and second color information and information relating to at least one of the brightness and color of one of the primitive surfaces.

15. An image generation system for generating an image,

wherein a simple object or a primitive surface constructing the simple object are set to have first and second color information; and

the image generation system comprising:

means which computes color information of the primitive surface by interpolation computation performed by using the first and second color information according to the amount of light that is sent from a light source and received by the

primitive surface; and

means which generates an image of the simple object based on the color information of the primitive surface.

- 5 16. A computer-usable program embodied on an information storage medium or in a carrier wave, the program implementing on a computer:

means which performs a light-source simple processing, the processing being necessary to change at least one of the
10 brightness and color of a surface of a simple object according to the amount of light that is sent from a light source and received by the surface of the simple object; and

means which generates an image of the simple object based on a result of the light-source simple processing.

- 15 17. A computer-usable program embodied on an information storage medium or in a carrier wave, the program implementing on a computer:

means which performs computation to obtain information
20 relating to at least one of the brightness and color of a primitive surface constructing a simple object, based on an incident angle of a light vector from a light source; and

means which generates an image of the simple object based on the information relating to at least one of the brightness
25 and color of the primitive surface constructing the simple object.

18. The program embodied on an information storage medium or in a carrier wave as defined in claim 16,

wherein computation for obtaining information relating to at least one of the brightness and color of a primitive surface constructing the simple object is performed based on an angle difference between a line-of-sight vector of a virtual camera and a light vector from the light source.

19. The program embodied on an information storage medium or in a carrier wave as defined in claim 17,

wherein computation for obtaining the information relating to at least one of the brightness and color of the primitive surface constructing the simple object is performed based on an angle difference between a line-of-sight vector of a virtual camera and a light vector from the light source.

20. The program embodied on an information storage medium or in a carrier wave as defined in claim 18,

wherein the angle difference is computed based on two-axis components in both the line-of-sight vector of the virtual camera and the light vector from the light source.

21. The program embodied on an information storage medium or in a carrier wave as defined in claim 19,

wherein the angle difference is computed based on two-axis components in both the line-of-sight vector of the virtual camera and the light vector from the light source.

22. The program embodied on an information storage medium or in a carrier wave as defined in claim 16, further implementing on the computer.

5 means which rotates the simple object such that a normal vector of primitive surfaces constructing the simple object becomes parallel to a line-of-sight vector of a virtual camera.

23. The program embodied on an information storage medium or
10 in a carrier wave as defined in claim 16, further implementing on the computer,

means which rotates the simple object such that a normal vector of the primitive surfaces constructing the simple object becomes parallel to a line-of-sight vector of a virtual camera.

24. The program embodied on an information storage medium or
15 in a carrier wave as defined in claim 16,

wherein the light source is a source of parallel rays.

25. The program embodied on an information storage medium or
20 in a carrier wave as defined in claim 17

wherein the light source is a source of parallel rays.

26. The program embodied on an information storage medium or
25 in a carrier wave as defined in claim 16,

wherein information relating to at least one of the brightness and color of a primitive surface constructing one

simple object among a plurality of simple objects is used to generate an image of a primitive surface of another simple objects among the plurality of simple objects.

5 27. The program embodied on an information storage medium or in a carrier wave as defined in claim 17,

wherein the information relating to at least one of the brightness and color of a primitive surface constructing one simple object among a plurality of simple objects is used to
10 generate an image of a primitive surface of another simple objects among the plurality of simple objects.

28. The program embodied on an information storage medium or in a carrier wave as defined in claim 16,

15 wherein the simple object or primitive surfaces constructing the simple object are set to have first and second color information; and

wherein information relating to the color of the primitive surfaces is computed by interpolation computation
20 based on the first and second color information and information relating to at least one of the brightness and color of one of the primitive surfaces.

29. The program embodied on an information storage medium or
25 in a carrier wave as defined in claim 17,

wherein the simple object or the primitive surfaces constructing the simple object are set to have first and second

color information; and

wherein information relating to the color of the primitive surfaces is computed by interpolation computation based on the first and second color information and information relating to at least one of the brightness and color of one of the primitive surfaces.

30. A computer-usable program embodied on an information storage medium or in a carrier wave,

wherein a simple object or a primitive surface constructing the simple object are set to have first and second color information; and

the program implementing on a computer:

means which computes color information of the primitive surface by interpolation computation performed by using the first and second color information according to the amount of light that is sent from a light source and received by the primitive surface; and

means which generates an image of the simple object based on the color information of the primitive surfaces.